The behaviour of the large thermometers may thus be referred to their greater strength; but it also appears that in thermometers with cylindrical bulbs great strength will not obviate the necessity of a vacuum-correction. —Added February 27th.]

13. In order to test the accuracy of the preceding results, the *closed* cases of the thermometers were opened; hence all instruments were in the same condition when the receiver was exhausted. The result was the following:—

Thermometers.	A.	A′.	B.	B′.	C.	C′.
Corrected mean of readings before exhaustion	56·24	56·03	56·23	56·08	55·17	55·23
Corrected mean of readings after exhaustion	53·65	54·02	54·24	54·42	53·00	53·03
Corrected mean of readings after an interval of $26^h\ 15^m$	52·56	52·27	52·47	52·49	51·87	51·85
Differences		−0·29		+0·02		−0·02

that is, the difference shown is either inappreciable, or due to accidental causes.

14. These experiments have sufficiently established the fact that in vacuum-experiments due attention must be given to the causes which influence the thermometers employed in the receiver, and that in delicate experiments an independent determination of the vacuum-correction is indispensable.

No new explanation of the cause of the permanent fall in a vacuum has suggested itself during the experiments. General Sabine's original explanation, that the removal of the atmospheric pressure alters the capacity of the thermometer, is probably the most correct, especially when it is considered that the only objection ever raised against it, that of time reproducing the original state of the instrument, has been proved groundless by these experiments.

In conclusion I have to thank the President and Council of the Royal Society for defraying the expenses incurred in these experiments.

IV. "Account of the Building in progress of erection at Melbourne for the Great Telescope." In a Letter addressed to the President of the Royal Society by Mr. R. J. Ellery, of the Observatory, Melbourne. Communicated by the President. Received February 27, 1869.

Observatory, Melbourne, Jan. 4, 1869.

My dear Sir,—The telescope has at length arrived, and we are now very busy getting it erected; for nothing could be done towards it till the great machine itself came to hand. It will be nearly two months before it can be fairly tried, when a spacious rectangular building and its travelling roof will be completed.

Mr. Le Sueur arrived nearly two months before the telescope, having

come by the overland mail, and the ship carrying the telescope making an unusually long passage.

The principal or more delicate portions of the instrument came out in good order: the specula are still in thin coats of varnish, and their surfaces appear in perfect good order. Some of the large castings and portions of the gearing had got rusted, but not to an injurious extent. The piers were completed on New Year's morning, and form a magnificent piece of masonry, the stone employed being the grey basalt, so common here (called "blue stone"), in blocks from one to three tons in weight each. The building we have finally decided upon is of stuccoed brickwork 80 feet long by 40 wide. Forty in length is taken up by the telescope-room, which is covered by a ridged roof of iron travelling on rails on the walls, and moves back on the other 40 feet of the building, leaving the telescope in the open air. The back 40 feet is covered by a fixed roof lower than the moveable one, and will contain a polishing- and engine-room, a capacious laboratory, and an office for observer. The cost of piers, building, and roof will be about £1700. The Government, with hard economy in all other directions, have still acted very liberally about this work; and I only trust the telescope itself will turn out all that is expected of it. The micrometer and spectrum-apparatus have not arrived yet.

Our magnetographs do their work smoothly and satisfactorily. The photography has become a part of the routine of the Observatory now. I have been anxiously awaiting the arrival of the baro- and thermographs, and we look for them every day, although I have had no advices of their having been shipped. I suppose you will have seen Mr. Verdon long before this reaches you.

I remain, my dear Sir,

Major-General Sabine,
Royal Society, London.

Yours faithfully,
ROBERT J. ELLERY.

March 11, 1869.

Lieut.-General SABINE, President, in the Chair.

The following communications were read:—

I. "Contributions to the Fossil Flora of North Greenland, being a Description of the Plants collected by Mr. Edward Whymper during the Summer of 1867." By Prof. OSWALD HEER, of Zurich. Communicated by Prof. G. G. STOKES, Sec. R.S.

(Abstract.)

The author stated that the examination of the fossil plant-remains which had been at various times brought to Europe from North Greenland by M'Clintock, Inglefield, Colomb, and others, as well as by Mr. Olrik, formerly Inspector of North Greenland, the results of which were pub-